

## ***The Wonder of Words: Using Technology to Support Vocabulary Instruction***

While observing in a 9<sup>th</sup> grade agriculture classroom recently, a teacher kept using the term “commodities.” At the conclusion of the lesson, I asked the teacher if her students knew what the word commodities meant. She considered my question for a second and truthfully admitted that the students probably were not aware of the contextual meaning. In her next class, she introduced the term again and then asked the students if they knew the meaning. In the class of 25, only two students offered reasonable and accurate responses.

This is not an uncommon scenario in agriculture classrooms across the country. Consider new or difficult terminology you have introduced or used in the classroom over the past week. Chromosome? Deciduous? Eradication? Asexual propagation... sound familiar? Challenging vocabulary can extend beyond content-specific terms. Larry Bell (2005) identified twelve words that can confuse students during assessment such as infer, predict, and formulate. One student teacher found when she asked her students to evaluate their welds, she was met with blank stares.

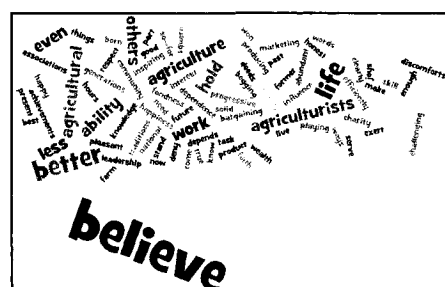
When I was in high school, direct vocabulary instruction involved little more than a vocabulary worksheet with 20 assigned terms per week. We were required to complete workbook exercises consisting of matching, fill-in-the-blank, and multiple-choice items and take a weekly quiz that often included similar question types. Beck, McKeown, and Kucan (2002) caution that this approach to vocab-

ulary instruction is detrimental to student development of interest and awareness in new and unfamiliar vocabulary terms. The researchers claim that in order for students to develop substantial vocabularies, they must be encouraged to continually interact with and use new words and examine relationships among new terms.

A wealth of research has documented the beneficial relationship between vocabulary knowledge and student achievement (Baker, Simmons, & Kame'enui, 1997). As a result, several approaches to direct vocabulary instruction are being promoted in schools and categorized as "instructional best practices in the 21<sup>st</sup> century." For example, Feldman and Kinsella (2005) suggest that when introducing a new term, students should first pronounce the word. Then the teacher can provide the meaning and additional examples of the word. Students are encouraged to elaborate on word meaning through the creation of additional examples and visual or graphic representations. Finally, the teacher assesses student understanding using both formative and summative means. Marzano and Pickering (2005) developed a similar approach in which the teacher first provides a description or example of a new term. Then students have the opportunity to rephrase using their own terminology and develop a visual representation. After the initial exposure to a new term, Marzano and Pickering encourage sustained interaction and reinforcement with vocabulary through additional activities, discussion, and games. This process of six steps offers multiple exposures and experiences with essential academic vocabulary where deep and long term understanding of the term is key.

(Marzano & Pickering, 2005).

Dalton and Grishman (2011) identified the contribution of eVoc strategies to support direct vocabulary instruction and promote interest in words. This integration of technology can add a novel twist to the vocabulary instruction I experienced in high school and capitalize on the learning styles of this generation of students. The use of visual representations can support students as they learn word meanings and examine the interconnected relationships with other terms (Beck & McKeown, 2001). Visual representations known as visualizations whereby students create mental images and mind movies with pictures are tried and true research based strategies that help students understand and comprehend words, terms and new learning (Harvey & Goudvis, 2007). With the participatory nature and user-centeredness of Web 2.0, there are a plethora of free web tools and online based resources that students can access and use to aide in their understanding of new words and terms in fun, interesting and creative ways. With many of these interactive and collaborative applications, students are using higher order thinking skills to create, synthesize, and apply their understanding.

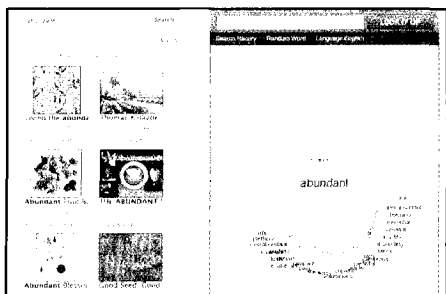


**Wordle** (<http://www.wordle.net/>) allows for the creation of word

clouds prominently displaying the most common words in an excerpt of text. The generation and analysis of images can promote students' thinking about the meaning and hierarchical relationships among words (Dalton & Grisham, 2011).

For example, when introducing the FFA Creed, students can examine the individual words that make up the creed and talk about how the words connect to create meaning. Students can also identify words that are unfamiliar or challenging so the meaning can be discussed amongst the entire class. Due to the nature of the formatting and word size feature of Wordle (and many other word cloud applications like **Tagxedo**, **Image Chef** and **ABCya Word Clouds**) teachers can use Wordle prior to beginning a lesson to predict main idea and preview the selection. Word clouds from units of study can be generated before, during, or after lessons to allow students to hypothesize upcoming lesson content and explore some of the new terminology that will be introduced and integrated throughout the unit.

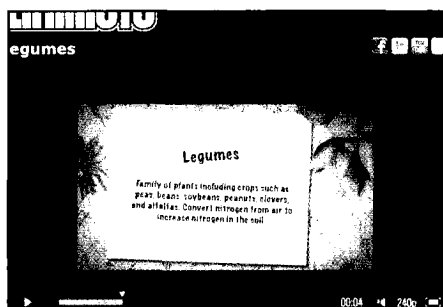
**WordSift** ([www.wordsift.com](http://www.wordsift.com)) is another technology tool that allows for the visualization of text. From the word cloud that is created from a segment of text, specific terms can be selected. For the selected term, related images are displayed and a conceptual map of related words is generated using **Thinkmap Visual Thesaurus** (<http://www.visualthesaurus.com/>). These features can assist students in developing visual representations of new terms and increasing vocabulary



by examining synonyms and antonyms.

**Wonder Wheel**, a left sidebar feature of Google search, can be used to identify and investigate related terms. For example, when entering the word pollination into the Google search box, a concept map is generated with several related terms such as seed dispersal, self pollination, germination, and photosynthesis. In addition, links to related websites are featured and auto-populated on the right. This technology tool provides a great way to introduce terminology and related terms for a lesson or unit. Wonder Wheel works best when the search word is broad and general.

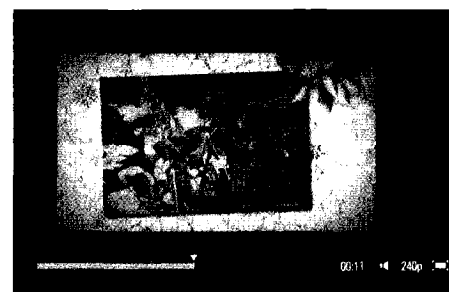
In addition to encouraging students to visually examine new terms, other technology tools can encourage students to examine vocabulary utilizing multiple modes such as writ-



ing, audio, graphic, video, and animation (Nikolova, 2002; Xin & Rieth, 2001). Using these various modes can enhance vocabulary comprehension as students read a definition, view, construct, or identify a related graphic, listen to a word, articulate a more personal definition for a word, add a caption to a graphic, or develop a conceptual word map (Proctor, Ucelli, Dalton & Snow, 2009).

At **Flickr** ([www.flickr.com](http://www.flickr.com)) students can select photos that represent the meaning of new words. Students describe or identify images using newly learned terms in a Google

Image search feature called Image Swirl. Similar to the Wonder Wheel for words and terms, **Image Swirl** creates conceptual image maps based on related categories of the searched image. A web application such as **Animoto** ([www.animoto.com](http://www.animoto.com)) allows users to produce videos from user-selected photos, video clips and music. With such an application, students can create slideshows using terms and definitions as well as related graphics to showcase one word or numerous words related to one main concept. Since most of today's students have grown up with YouTube as part of daily life, consider having students produce their own vocabulary videos; short 60 second videos that situate word learning in a specific context, using Flip cameras in conjunction with free audio applications like **Voicethread**, **Blabberize**, **Audacity** or **Voice Memos** to narrate their productions.



**BigHugeLabs** ([www.bighugelabs.com](http://www.bighugelabs.com)) is another site that encourages visual fun with words. Students can create motivational posters, magazine covers, or movie posters featuring new vocabulary. The example on the following page includes an appropriate visual, the term, and a definition generated using a student's own terminology.

Technology is like electricity, it's everywhere and unavoidable. Using technology and multimedia in the development of students' academic vocabulary through generative, multi-



modal expression, not only gives students experience with digital technologies required in the 21st century but the use, application and creation with them is motivational and academically beneficial.

## References

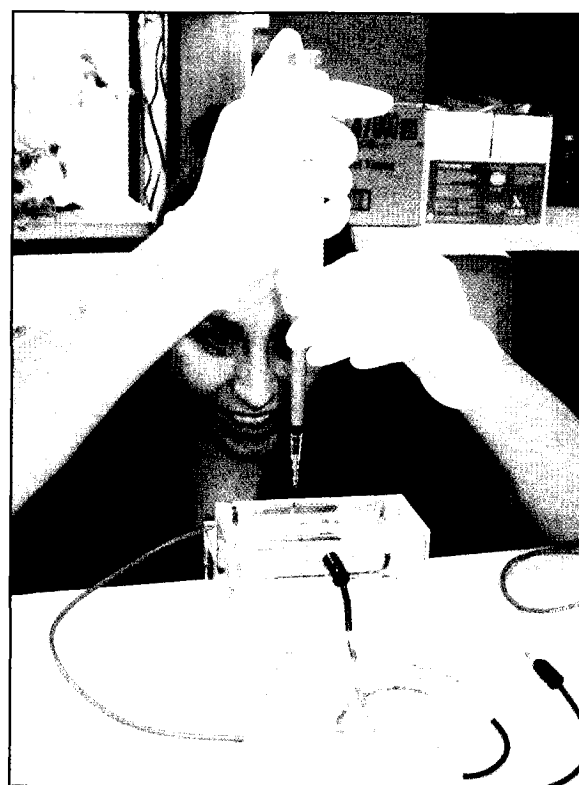
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Yvonne Diaz pipettes fish proteins for separation by polyacrylamide gel electrophoresis. Read the complete article on page 25.